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Virginia Wildlife

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PUBLICATION OFFICE: Commission of Game and Inland Fisheries, 7 North Second St., Richmond 13, Va.

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JUNE
Volume XXII/Number 6

IN THIS ISSUE **PAGE**

The Multiple-Use Concept 4
These, Too, Have Value: Crows—'Chucks—Varmints . 6
Trout—Stocked or Native? 8
The Responsibility of State Game Agencies in Managing Hunting on Private Lands 10
Enjoy Native Plants Through Wise Use 13
Virginia Wild Flowers 14
Principles of Game Management—Part Three: Game Refuges 17
Policing the Waterways 18
A County Wildlife Project 20
Vacation Time in the Mountains 21
Bird of the Month: The Willet 23
Youth Afield 24
The Drumming Log 25
Commission Field Force Notes 26
On The Waterfront 27
Falcons 28

COVER: The Yellow-throated Warbler is a fairly common Virginia summer resident east of the Blue Ridge mountains. This picture was taken in Westmoreland State Park last June on the day the young birds left their nest. Commission photo by George H. Harrison.

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EDITORIAL

Just One Day a Year

ONCE a year the members of an honorable but strange-sounding angling fraternity meet in the Maryland Blue Ridge Mountains for an annual campfire, some angling fun, and the renewing of a wonderful pledge to youth. The principal aim and purpose of The Brotherhood of the Jungle Cock is to promote true outdoor sportsmanship. It also seeks to foster the niceties of fly fishing by having each member pledge to take a boy fishing once a year and to introduce him to the merits of fishing with the artificial fly. Pity it is we do not have such brotherhoods in every city, every county, every community in America. Were it so, much of our present-day juvenile delinquency—which is really "parent delinquency"—would probably cease to be.

Several years ago the Reverend Monsignor Nicholas H. Wegner, director of Father Flannagan's Boys Home, Boys Town, Nebraska, made the following observation about boys and the outdoors: "Of all the pictures that have been made of (former) President Dwight D. Eisenhower, the one I like the best is that which shows him out fishing—with his grandson."

The scene in question is in the high meadow country of Colorado. Shafted by majestic mountains, surrounded by a verdant landscape on all sides and away from the cares of a tumultuous world of tension and intrigue, here the quiet, very human general and President calmly instructed his young grandson in the art of trout fishing.

Going fishing . . . the digging of luscious-looking earthworms in the rich spring earth . . . the cutting of a willow sapling from a streambank . . . the eager baiting of the hook . . . thumping young heart as a brookie flashes in a pool and strikes . . . the sailing of the trout over the treetops—all these are indelible boyhood experiences that stir a boy's soul, impressions that no power on earth can erase or replace. They are the fleeting moments when seemingly simple and unimportant experiences get welded into sinews of permanent character. They are the days of youth so often immortalized in verse by great men, such as James Whitcomb Riley, for example.

Every man owes it to himself and his kind to take a boy on a fishing trip sometimes. The companionship of maturity and youth is never closer than on a trip such as this, the wise ways of the out-of-doors never better learned than on such occasions.

Men should never forget that the call of the natural outdoor world is instinctive in all of us. It is particularly strong in the heart of every boy.

If every man in America would take one day off each year and guide his son (daughter, or someone else's son or daughter) on a fishing trip—teaching him the ways of gentle angling and the glories of its natural world—the cumulative good in character building and the development of a proper outdoor conscience would be great indeed. What's more, this world in which we live with some trepidation just might become a better, surer, nobler world. For, as someone once said, sensitivity and nobleness emerge from close association with the real and the truth which, after all in its finest sense, is nature itself.—

J. J. S.

LETTERS

A Sampling of Public Opinion

I AM highly pleased with VIRGINIA WILDLIFE; be assured that it is the best "mouthpiece" for conservation I've seen anywhere. As an ardent competitive pistol shooter and National Rifle Association member, I am happy with the views editorially expressed with regard to gun legislation. It is good to see that there are still some government agencies who do not fear to take a stand on this "thing" which all dedicated shooters and hunters fear.

Wilbur O. Dodd
Falls Church, Virginia

I THINK your magazine is superb! As a lover of birds, I am highly enthusiastic about your "Bird of the Month" series in particular.

John W. Gardner
Washington, D. C.

I ENJOY VIRGINIA WILDLIFE very much, especially articles and reports dealing with the southwestern part of the State.

E. Dean Sturgill
Rugby, Virginia

THIS is the first magazine that has ever come into my home that my husband insists I renew. We are both pleased with it very much but I especially like the articles on bird life and would like to see even more. Your covers are beautiful.

Mrs. Russell Perry
Portsmouth, Virginia

CONSIDERING I have subscribed to wildlife magazines of five other states as well as VIRGINIA WILDLIFE for the past five years, I think I am qualified in saying you are doing an excellent job in preparing your magazine. I say this regarding attractive appearance as well as the editing.

W. N. Allen
Richmond, Virginia

MANY THANKS for your magazine which is put up on such fine paper that it is easy to read even though I am 80. Still hunt and fish.

J. P. McKisson
Lee's Summit, Missouri

CONGRATULATIONS on your fine magazine and its strong conservation policy and editorials. This State like all others needs people like you if our natural resources are to survive. Also, congratulations on the fine work you have done at Lake Brittle in Fauquier County; it's my favorite fishing spot around here!

Kenneth Bergeron
Arlington, Virginia

THE MULTIPLE-USE CONCEPT

By A. H. ANDERSON

Supervisor, George Washington National Forest
Harrisonburg, Virginia

MULTIPLE-USE land management may be referred to as a concept, as a principle or as a practice. Obviously, it is all three.

Multiple-use is a term familiar to foresters and other land managers. The term is not new. In the past and even now a synonymous expression, "Land Use Planning," is being used.

Thinking in terms of forests, we can consider four major uses—for wood production, use as watersheds, as habitat for wild game and fish, and use of the forest for outdoor recreation.

I would like to briefly discuss some of the factors which are responsible for the increasing awareness and need for coordination of forest resources. They are familiar to most of you but they are of sufficient importance that they are worthy of again calling to your attention.

When there is abundance of natural resources and few people, there is little need for multiple-purpose land use. However, when increasingly large numbers of people must rely on an unchanging or diminishing resource base, they must make the most effective use of the resources they have.

Condensation of a paper presented at the annual meeting of Virginia Forests, Inc., February 1, 1961, Richmond, Virginia.

Photo by Leonard Lee Rue

The white-tailed deer is a good example of a renewable resource found on the two national forests in Virginia.

Multiple-use of renewable land resources, thus, is a necessity born of scarcity of resources and abundance of people who need these resources.

Competition for the use of land is growing throughout the country and even in Virginia. This competition will not decrease but increase as our population increases. In 1800 the United States had a population of 5 million people. At the turn of the century we had 76 million. In the next 50 years our population doubled. Last year it was 180 million. Population is expected to double the 1960 figure by the year 2000. It is no surprise that we have reached the stage in the development of our country where the demand for renewable resources requires us to make the most effective use of the resources we have, even developing them far beyond their present capacity. We must do this if we are to survive as a healthy and vigorous nation.

The wise use of forest lands cannot be considered in a vacuum. We must consider them in relationship to the fullest possible yield of all the products and services that forest land provides for people.

Pressures are developing to set aside large areas of national forest lands exclusively for recreational use. There will be large areas of highly productive, privately owned forest lands inevitably developed in the next few years for agricultural purposes.

We cannot condemn single use, primary use or exclusive use of land for one major purpose. Some of these uses are as beneficial for the good of the people as is the use of forest land for multiple-use land management. For some purposes, such as highways, the land must obviously be devoted to that use.

However, all of us interested in multiple-use management of our forest lands, must carefully consider, appraise and evaluate the diversion of land from a multiple-purpose status to a single purpose.

I would like to quote the following from an address given by Richard E. McArdle, Chief, Forest Service, at the Fifth World Forestry Congress held in Seattle this past fall: "An essential of multiple-use is positive, affirmative management of the several uses involved. Haphazard occurrence of these uses on some particular tract of land does not constitute multiple-use management. Multiple-use is not a passive practice. On the contrary, it is the deliberate and carefully planned integration of various uses so as to interfere with each other as little as possible and to supplement each other as much as possible. Multiple-use is by no means an assemblage of single uses. It requires conscious, coordinated management of the various renewable resources, each with the other, without impairment of the productivity of the land."

The principles of multiple-use land management have wide application on all types of land ownerships. On national forests the objective is to meet the needs of all the people. On state lands, the objective would be to best meet the needs of the citizens of that state. On privately owned lands the

objective would be to best meet the needs of the owner. He will express these needs in whatever terms he may choose. These private-owner criteria, of necessity, usually tend to be economic ones.

Multiple-use of the area comprising the two national forests in Virginia is not a new thing. While the term has only been used to any extent within the past 20 years, the practice goes back to the period when national forests were organized. In the older forests of the West, the practice is more than a half century old. As in all types of management, when problems and conflicts increase in intensity and number, multiple-use land management becomes more complex.

Full recognition of the multiple-use principle of land management was given to the national forests by the Congress of the United States in the Act of June 12, 1960. This act directs that the renewable resources of the federally owned national forests, some 181 million acres, be managed for sustained yield and multiple-use. General legislative authority to manage these public properties for use of their watershed, timber, forage, outdoor recreation and wildlife and fish resources, was provided many years ago.

In order to make multiple-use work, it is necessary to have well-defined management objectives and plans which are carefully coordinated with resource potential and demands and which are sufficiently flexible to permit adjustment as the resources and needs of the people change. In our planning for multiple-use, equal consideration is given to all the basic renewable resources. However, in application, priorities must be established and concessions made in individual uses depending on the needs of the people and the potential and nature of the resources themselves. Any concessions that are made must be planned and in harmony with the management objectives of the particular administrative unit involved.

There are two basic elements of the multiple-use principle followed by the Forest Service. They are: First, all resources receive equal consideration. No one resource or use automatically outranks another. Secondly, there must be two or more major uses involved, and there must be coordination of these uses.

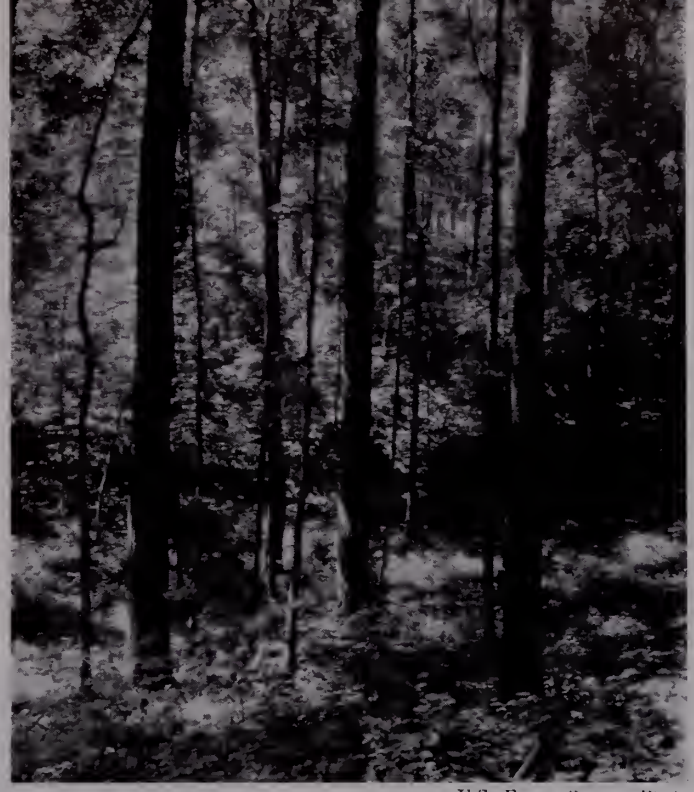
In application, it is often necessary to establish priorities when conflicts occur. It is not until confronted by local conditions in which there is a specific relationship between supply and demand that a decision has to be made that one resource or use might be more important in the public interest than one or more of the others. Frequently, a local problem involves one resource that is in critical supply. We find that the resource may logically receive priority over the use of other resources which are more abundant.

The Virginia national forests have four major renewable resources: timber, soil, water, and wildlife, and one nonrenewable, consisting of minerals.

Timber Resource

Timber management on the two forests consists primarily of removal of over-age and diseased timber through saw log and pulpwood sales, cultural work in second growth and heavy cut-over and burned stands to improve quality of residuals, planting and other work which contributes to the overall betterment of the timber stands.

There are a number of coordination measures which are commonly applied. Strips of uncut vegetation are left along fishing streams and around borders of impounded waters to protect fishing waters and scenic values. Strips of timber are also left uncut along highways and main forest roads. Timber cutting is permitted in these reserved strips only to salvage



U.S. Forest Service Photo

Timber management on the two forests consists primarily of the removal of over-age and diseased timber, cultural work in second growth and planting for the betterment of the timber stands.

dead and dying trees and those which are hazardous to the public.

Special measures are taken on all timber sale areas to prevent soil erosion and also to protect watershed values. These include cross-draining of temporary roads and skid trails, seeding of grass and planting of trees on disturbed areas such as skid roads, landings and temporary haul roads. This prevents erosion and also furnishes game food and cover. Skidding logs in stream courses is prohibited, and crossings are held to a minimum.

Areas which have special recreation values are reserved from cutting except possibly for a very light preparatory cut to condition the site for future recreational developments. Whenever possible, logging roads are located and designed so that they will be usable as approach roads to areas to be developed for recreational purposes. In many instances these roads make additional areas of the forest more accessible to the hunter and fisherman.

Recreation and Land Use

There are numerous areas in the two Virginia national forests which are devoted primarily to one use because of natural limitations or because some uses cannot be made compatible through application of multiple-use principles. Commercial timber harvesting and hunting usually do not mix with people on a heavily used public campground. There are other examples, under special use permit, which often exclude other uses, such as summer home sites, public service facilities and others.

There are areas set aside on the forests which have been designated "natural areas." These areas were established to protect typical examples of important vegetative types. In these areas some forms of restrictive use are permitted, such as hunting, fishing, hiking and informal camping. However, no timber cutting, construction of roads or other developments are permitted.

There are other areas which, because of scenic qualities, are subject to certain restrictions. Management of the uses

(Continued on page 22)

These, Too, Have Value:

CROWS—'CHUCKS—VARMINTS

By JOHN A. BATLEY, JR., *Alexandria, Virginia*

TO an increasing number of gunners the closing of the regular hunting season for game birds and animals is but a temporary lull. It is a pleasant respite, the prelude to crow, 'chuck and varmint shooting. It signals the time to tune and practice crow and predator calls. It provides the excuse to buy new flat-shooting scope-sighted rifles, fast-pointing shotguns, camouflage garments, and decoys. It gives impetus and incentive for loading special high velocity rifle cartridges as well as special long-range, hard-hitting shotgun shells.

There is real satisfaction to be gained from making ready and obtaining all of the appropriate equipment within budget allowances. Much pleasure is derived in mapping new strategy for the anticipated hunts. Even a few new tricks or modified techniques may be envisioned to further increase the advantages of the hunter over the hunted regardless of whether the hunted be crows, groundhogs or other unprotected species.

Mr. Groundhog—fair game in June.

Besides the personal satisfaction and enjoyment derived from making preparations, the actual putting into use of weapons, ammunition and methods in the fields and woods is even more rewarding. It provides much-needed exercise and a chance to breathe relatively clear air. It divorces the individual—temporarily at least—from the tensions imposed by traffic snarls and other tribulations associated with modern living. Not only do the weekend crow hunts and groundhog safaris provide means for relaxation; they serve also to emphasize the need for patience and tolerance, patience to wait for the right opportunity and trophy, tolerance to disregard the fly bites and petty annoyances normally accompanying a careful stalk to ensure a sure and clean kill. These weekend forays may even change an individual's philosophy of living in our modern world, making for a better neighbor, a more congenial co-worker, even a more responsive and understanding spouse.

In addition, the interest displayed by the individuals who participate in this fascinating sport has contributed markedly to the development of better weapons, ammunition and accoutrements. The "wildcat" cartridges and weapons designed for a special purpose by some individuals have become standard equipment for a large following.

The "needs", fancied or real, required by this ever-increasing number of shooters also improve the economy of our country. Old established manufacturers of such items as rifles, shotguns and ammunition have found a new and reasonably lucrative outlet for their wares during seasons that normally were dormant but a few short years ago. Newly established firms producing special bullets have found a ready market for their products. The manufacture of crow and predator calls as well as decoys have increased materially over what it was 10 years ago. Producers of the optical aids, such as telescope sights, spotting scopes, and binoculars have catered to the special demands for this type of equipment and consider it worth their effort to give the best. Together with the more obvious specialties of the trade, tape and disc recordings of the particular animal and bird calls with amplifiers and speakers are quite often used. A fairly obvious conclusion to be drawn is that a lot of people are gainfully employed in making all of the necessary items and a far greater number exchange hard-earned money when they buy them. It really is big business.

The pleasures derived from this long-season hunting, together with the profits resulting from manufacturing and selling the specialized accessories for the sport are dependent almost entirely on the natural crop of crows, 'chucks and varmints. If the supply is good, the number of gunners increase and the sales of equipment go up. When this supply dwindles or is depleted entirely there will be few gunners, very little pleasure and not much profit from sales of equipment.

In the final analysis there are only two fundamental reasons why so many individuals take up and pursue crow, 'chuck and varmint shooting. It is for the sport and challenge of the thing or because of the comparatively large number of living targets. The food value of crows, (except in paying off an election bet) is nil. Not too many people eat 'chucks, and the hide of this small animal and the hides of other varmints are not in large demand. The net result of all this is that the wildlife is killed and discarded, on the spot perhaps or possibly after it was photographed.

In spite of relatively large numbers there are good reasons to believe that the natural supplies of crows, 'chucks and varmints are not inexhaustible. The crow population of the United States is estimated at about 50 million birds. Even the lowly groundhog would leave a noticeable void if he were to be completely eliminated. It could occur in certain areas from excessive hunting pressures coupled with a total dis-

Photo by Leonard Lee Rue

Only a hunting license and the landowner's permission are required to hunt crows at any time.

regard of the animal's breeding habits; the young are usually born between the last part of April and the middle of May.

Generally speaking, crows, 'chucks and varmints are not specifically protected by law, neither by season nor by bag-limit. The absence of controlling laws in these areas is not license to disregard the established code of sportsmanship nor does it signify approval to wantonly destroy wildlife. There may be exceptions, of course, where crows and chucks as well as other birds and animals have become a nuisance, a hazard or an undesirable economic risk. Drastic and severe means to control such local condition may be warranted. Normally, however, the rules of good sportsmanship and ethics as well as consideration for the species being hunted can be applied —at no sacrifice to personal ego, satisfaction and conscience.

It would seem prudent on the part of crow, 'chuck and varmint hunters to prolong the sport for their own continued benefit. Particularly attractive areas for hunting within relatively short drives from home cease to be attractive if they contain no birds or animals to shoot at. New geographical locations must be scouted, and permission obtained to hunt; sometimes this is not easy. Therefore it becomes cheaper and more enjoyable to see to it that the original site is hunted in a manner to provide recurring days of pleasure. Where two or more locations are on the list of available properties, hunting on alternate weekends helps a lot.

In addition, it is no great personal accomplishment to kill a sitting duck. Much more satisfaction is realized when the kill is made during full flight and at difficult angles. The same display of sportsmanship is appropriate when hunting crows with a shotgun. Take the wily old birds on the wing as they come in to the blind or decoy, but spare the ready-to-fly fledglings, on or near the nest, to grow up and become a real challenge to the scatter-gunner's skill. A *self-imposed* bag limit of five hard earned trophies should mean a lot more to the individual gunner than 15 easy "set-ups"; besides, 10 extra crows are available for two additional days of shooting.

The 'chuck, or common eastern groundhog, is not a socially inclined animal even with his own kind. In mid-summer it is not common to find two adult 'chucks sharing the same burrow. There may be several old 'chucks in a given area, but each one seems to prefer to maintain privacy in independent underground apartments served by several entrances. Consequently, multiplying the number of observed burrow openings by a factor of one or more is not a correct measure for estimating the true 'chuck population. Ultraconservatism should temper the figures in order to provide continued sport through intelligent "harvesting of the crop." Families consisting of the mother 'chuck and several young, quite naturally, utilize the same home burrow from the time of birth (which occurs, generally, about the last of April to mid-May) until rather late in summer. The young then go their separate ways to feed, fatten up, and find suitable burrows of their own before the onset of cold weather and mother 'chuck finds herself back at the beginning again.

Some 'chuck hunters are aware of the reproduction periods of the animal. Other hunters may not know, and some, apparently, do not care when young 'chucks are born. All of these hunters understand, however, that the recurring crops of young 'chucks are what make shooting pleasure possible. Unfortunately, the warm and pleasant days of April through the month of May are most vulnerable times. These first balmy days following the winter months are magnets drawing many 'chuck hunters to their favorite fields and shooting areas. It is also the time when the new-born 'chucks are either helpless in the burrow or are so immature that they can scarcely forage for themselves. Killing an adult female 'chuck at this time is fairly good insurance that as many as nine additional 'chucks may die with her. Because of these circumstances it is not surprising that a good 'chuck hunting area one year may be practically bare of animals the following season.

As a matter of selfish interest in prolonging the sport it would seem that 'chuck hunters could well afford to delay serious hunting of the animal until about June of each year. By this time the young 'chucks have had a chance to learn the fundamentals of simple existence and may, with luck, live long enough to become the source of new litters in the years to follow. The hunters, too, in establishing a self-imposed season could not then be criticized for being entirely unmindful of nature's problem in providing enough animals to preserve the species as well as the sport for future generations.

Varmint shooting, too, requires some careful thought and consideration in the same light as crow and 'chuck shooting. In spite of general opinion to the contrary, if a lot of individuals enjoy pursuing and shooting the animals classified locally as varmints (not including common rats), these animals possess some value; they are truly not vermin nor are they worthless. Where the supply of animals is large a few hunters may not deplete the supply alarmingly regardless of the personal ethics displayed. When the supply is small, however, and the number of hunters increase there is definite need to take inventory of the wildlife stock and its method of harvest. Self-imposed restrictions are not wasted when they contribute to preventing the near extinction of the species in a given locality. Remember, in about 40 years, at the present rate of growth, the population of the United States will be twice today's figure or about 350 million people; a large number, as their rightful heritage, may expect to hunt, too.

And so it becomes your responsibility, and mine, not to squander and abuse the rich inheritance of wildlife and the privilege to hunt it intelligently. It is our responsibility and duty, too, as sportsmen who will one day become ancestors, to bequeath to those who follow the results of a wise and good stewardship—an abundant population of wildlife and ample areas in which to hunt or otherwise enjoy it.

Trout—Stocked or Native?

By DON CARPENTER
Annapolis, Maryland

WITHOUT fear of contradiction, I can say that the native brook trout born in Virginia's mountain streams are some of the most beautiful fish that swim and certainly some of the smartest fish in the piscatorial world. The brown trout can withstand public fishing pressure better most of the time, but, under certain conditions, loses all its natural caution and is a sucker for any kind of bait.

This piece is concerned with the question of our having stocked or native trout in our streams and, also, some of the best ways to enjoy the sport of taking real native trout in a sportsmanlike manner.

As far as I know, brook trout have graced our waters since Indian days. The red spots with circles of deep blue around each spot . . . the deep, heavy bodies, with hooked jaws in the males . . . the inky "soot" below each jaw, and fins tipped with mountain snowy-white . . . the mackerel back that blends so perfectly with the bottom of a stream . . . the salmon-pink color of the native brookie's flesh—these are all marks of the thoroughbred. Hatchery fish lack the pink meat and brighter red spot and blue rings, because an insect diet causes this phenomenon. Also, hatchery fish are less heavy in the body, are generally of a lighter color on the body and lack the speed of wild fish.

Life for a hatchery trout is sure and unhurried—the fish always know where their next meal is coming from—and it is practically served with forks and napkins. They seldom have to hurry when they head for the feed trough, so they become as soft as city drugstore cowboys—the kind the Marine Corps does not recruit.

Hatchery trout have no reason to develop their brains; others think for them; and so, when faced with the realities of life after being dumped from a can into a strange stream, they are easily caught by man, birds or animals. It takes time to develop wildness and the ability to find food and proper protection in a trout.

A major fault in our put-and-take program of planting hatchery trout in our streams has been the truck-following routine of greedy and lazy fishermen, who know that the freshly planted trout can be easily caught when first introduced to new waters.

It is also a fact that, in a relatively few hours, hatchery trout away from their regular food supply become very hungry because their stomachs have been stretched with forced feeding and tuned to expect food at set intervals.

Thus, the hungry fish hunts food avidly, and finding little or none, it must resort to eating gravel to give it a comfortable feeling. Many times, I have taken freshly planted trout, examined their stomach contents and found nothing but a large handful of stones and pebbles.

Gorging on pebbles does not mean there is no other food in a stream. It simply means, in most cases, that the hatchery fish has not learned what a stone caddis, stick-bait or nymph looks like or where to find it. This instinct develops in time and through necessity.

So, in its strange world, the "amateur" trout is a sucker for live minnows, worms, Velveeta cheese balls, liver, spinners and other lures used by the non-purists.

There is no accounting for trout tastes: I have caught brookies with a dry fly when it was obvious that they could not swallow the fly because the fish had swallowed a whole young robin and had the legs still sticking out from its mouth. Obviously, the robin had fallen from its nest above the water.

Several times I have taken square-tails a foot long with an 18- or 20-inch snake in the stomach, so it certainly was not hungry. Large trout sometimes like a fat bullfrog, a newt or a salamander. Even mice will lure them.

Our eastern mountain streams are mostly small ones, with plenty of trees or brush overhanging the water, quite unlike the big wide-open western streams with plenty of elbow room for casting. Therefore I like to use a short, light rod locally.

The acme of tackle perfection here is a two-ounce Orvis deluxe rod, six or six and a half feet long, with a light, single-action fly reel and triple-taper torpedo-head floating line. Such an outfit costs about $125, but it is possible to purchase tackle at much less cost which can be serviceable. The automatic reel has no particular value on eastern streams except for the handicapped who have lost an arm or hand.

The only practical spinning tackle for mountain trout is the Ultra-lite kind, with six-foot rod weighing not over two ounces, a special light reel, and two-pound test line. Heavier spinning tackle, and eight or nine-foot fly rods are like taking a ham sandwitch to a banquet. They are not needed for even the largest trout we grow here and they are a nuisance to handle on a brushy stream.

Seldom does the Virginia trout angler need a long leader, even with dry flies. I favor the lightest leader material that will fool fish, and they rarely exceed six feet when I make them up, tapered from butt to tip. I have found tinted leaders helpful in fooling wild trout. Tippets should be drawn to 4X and 5X for wily fish.

The problem of hook sizes has never been settled to everyone's satisfaction. I generally start the season with fairly large hooks and in late spring and summer work down to the smallest, even No. 20-22. Bait fishermen should use large hooks that very small trout cannot swallow causing their death. However, it is really amazing how large a trout you can catch with a No. 22 fly if the angler does not try to "horse" the fish he is playing.

I have tried to show the weakness of depending on stocked fish for our sport.

Here are some of the ways *I* think we can restore native trout fishing in Virginia streams, so that we can again re-live the days of old:

Let us use some of the license money now spent to rear trout for our "put-and-take" planting program for planned stream improvement.

Sportsmen's clubs, I am sure, would be glad to give volunteer help to the State in building deflector dams in the streams, creating deeper pools, cleaning out springs, and doing the many chores necessary to bring their waters back to a paying basis.

It's a fact that the rate of growth and reproduction of all fish is directly related to the amount of food available. Many of our so-called trout streams today are almost barren of natural food, and until these streams are improved there can be no hope of restoring native trout in sufficient numbers to eliminate artificial stocking.

Another thing is that some of our waters are best adapted to brown trout only. The brownie can withstand heavy fishing pressure, greater amounts of siltation, and competition for food. However, it does best when the food supply is unlimited, just like all fish.

Fishing itself is good for a well balanced stream. In fact, in most cases, a stream can be heavily fished if the young grow fast and have an excess of food. The harvest of fish and sport depends on Nature's Balance!

A look at the record reveals that only 30 years ago nearly all the Blue Ridge mountain streams were alive with brook trout—native fish that grew naturally to 16, 18 and even 20 inches long, with many averaging from nine to 12 inches.

Today, despite heavy stocking annually, the same streams do not carry one-tenth the native brookie population of 30 years ago, and a nine-inch legal native trout in Shenandoah Park waters is hard to come by and a daily limit a rarity. No longer is it possible to see schools of young trout swimming in the best pools.

Yet, 30 years ago the same streams swarmed with trout life, despite the fact the mountaineers and their families fished 12 months a year and usually took home a mess of 100 to 200 native brook trout when they "had a hankering for fish." Also, in those days, snakes swarmed through the mountains. Homes were built on the streams, some land was tilled on the watershed, and orchards grew in the clearings.

Now the mountaineers are gone, their homes destroyed. The clearings have grown over. The trails have almost disappeared, along with the snakes, and the mountains are beautiful . . and almost fishless. There must be some sound reasons for this decline in native fish, when so much was done to restore the primeval scene.

I do not know all the answers to this enigma, but there must be a way to restore the balance of Nature that existed, despite undesirable conditions, during the mountaineer's era. Perhaps we should more closely examine the non-conservation ways of the "Free Staters" before they were moved to the lowlands. They had a certain something, and that something certainly was native fish. If there was method in their madness, let us find out what.

The only trout water I know that has had no decline in the native brookie population in the past 30 years is at Kennebago Lake, Maine, where only wet or dry fly fishing is permitted, and where bait, trolling and spinning rods and lures are taboo. That system might work out here, too. What do you think?

Fishing is good in a well-balanced stream. In fact, in most cases, a stream can be heavily fished if the young fish have enough food.

Photo by Leonard Lee Rue

The Responsibility of State Agencies in Managing Hunting on Private Lands

By JACK H. BERRYMAN

Wildlife Specialist, Extension Services
Utah State University, Logan, Utah

IT is the responsibility of state fish and game departments to assume leadership in providing harvestable game supplies and public hunting opportunity on public and private lands; and for full development and a management of wildlife resources for the benefit of all segments of society. The alternative is to abandon the American tradition of public hunting, and to abandon the management of a resource with tremendous, unrealized potential.

The position that state agencies are responsible only for regulating the harvest of wildlife produced incidental to other land uses is completely untenable.

This, in debate parlance, is the proposition—one view on a symposium examining the philosophical question of state responsibility in providing public hunting. The proposition, thus stated, is followed by a review of fundamental issues, development of a philosophy in support of the proposition, and finally, a six point approach to implement the philosophy.

Issues and Contentions

We are concerned first with the basic question of whether a responsibility exists, not with the difficulties that complicate its successful administration. Several issues are pertinent to the question.

1. The Issue. Whether private lands can be used for public hunting.

The Contention. Roughly 76% of the United States, excluding Alaska and Hawaii, is privately owned. It follows, therefore, that private lands *must* furnish a major portion of public hunting, particularly for upland game. And, it is obviously necessary to secure the cooperation of the landowners.

State and Federal management areas and commercial shooting preserves will be of increasing importance, but main reliance must be on private land, under harmonious conditions with its primary use.

2. The Issue. Whether states are responsible for providing hunting for the average hunter, and for preventing conflicts of interest caused by wildlife resources.

The Contention. Constitutionally, game is owned by the state, held in trust for the people. Further, most game departments are charged with ". . . the responsibility for propagation, protection and management of wild game." This American legal framework embodies ownership, trust and management. It implies a responsibility for the welfare of game and its habitat, whether on public or private lands. It also implies a responsibility to the people, to the average sportsman, and all others involved in game production and harvest, and for preventing conflicts among these people.

The law does not spell out how this responsibility is to be discharged. Traditionally this has come to mean direct responsibility: propagation of game farm animals; acquisition and direct manipulation of habitat; and establishment of public shooting grounds. A broader view would assume an indirect responsibility: a responsibility for developing broad social, economic and legal programs that would result in favorable conditions for game and its habitat, provide public hunting, and prevent conflicts.

There are also very practical reasons for the states assuming responsibility for developing public hunting programs. The problems of working out individual hunting arrangements are too complicated for individual hunters and landowners. As the number of farmers who no longer live on their land increases, the problem of locating the owner and obtaining permission becomes more difficult. And, there are too many hunters and landowners to expect individual arrangements to meet with a wide degree of success. It is unrealistic to expect a state's one million hunters to conduct individual negotiations and to expect individual landowners to develop effective hunting arrangements. This can result only in a crazy quilt patchwork of arrangements and additional posting simply because it is too inconvenient and complicated for the landowner to manage public hunting. A further weakness of individual arrangements is that they fail to guarantee maintenance of adequate habitat. The total habitat transcends property lines.

In the United States there has been a traditional concern for the average hunter, the "one gallus hunter." Public hunting has been our heritage and remains the goal, however difficult, for most game departments. To abandon the goal is to abandon responsibility to the average hunter, the landowners and the resource.

3. The Issue. Whether fish and game departments can cater primarily to the fishing and hunting public and, at the same time, fully discharge their responsibilities.

The Contention. Sportsmen are not the only people interested in and affected by fishing and hunting. Yet, most game departments cater primarily to this group.

This is costly and fallacious and implies a selfish interest in only one phase of wildlife management—the pursuit of pleasure. It begs a basic question: are state agencies interested solely in fishing and hunting, or in the full development, use and enjoyment of wildlife resources and in the many people that are or can be affected by their management?

Presented at the 26th North American Wildlife and Natural Resources Conference, Washington, D. C., March 7, 1961.

The contention is this: game departments are responsible for developing programs that benefit all segments of society —the farmer, the businessman and the sportsman.

4. The Issue. Whether fish and game departments can control the many activities that influence wildlife management.

The Contention. Obviously, fish and game departments have no direct control over many of the activities that affect wildlife resources such as highway construction, pollution, residential expansion, the use of pesticides, and farm practices.

Fish and game departments are, however, responsible for understanding these activities and for developing coordination, cooperation and positive programs that assure reasonable consideration of wildlife resource in total land-use planning.

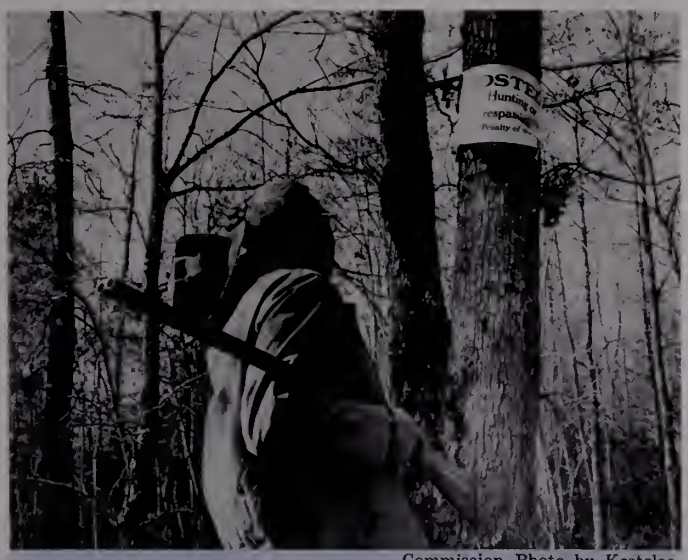
5. The Issue. Whether fish and game departments can, without assistance, discharge their responsibility for managing wildlife.

The Contention. The complexities of completely managing wildlife resources require a myriad of talent: experts in land-use planning, urban and rural development, economics, human population dynamics, and others, in addition to countless specialized scientists. Obviously fish and game departments do not have, and are not likely to have, such talent. Assistance can and must be obtained through cooperative and contractual arrangements with public and private agencies.

6. The Issue. Whether present management philosophies and concepts are adequate to meet the future needs of wildlife management.

The Contention. Present philosophies and concepts are inadequate to meet mounting fishing and hunting pressures; for recognizing the coming role of wildlife resources in the national agricultural, industrial, economic, social, and cultural patterns; for resolving conflicting interests; for developing economic potential; and for providing public hunting. The increase in posted lands, the adverse resolutions from farm organizations, and the restrictive legislation, together with an ever shrinking habitat, are evidences of the inadequacies of present concepts and philosophies.

Summation. In capsule form, it is contended that state agencies have a responsibility for providing public hunting but that present concepts and philosophies are inadequate to discharge this responsibility.



Commission Photo by Kesteloo

All too often the hunter meets the "Posted" sign. As the number of farmers who no longer live on their land increases, the problem of locating the owner and obtaining permission becomes more difficult.

A Positive Philosophy

There is clearly an urgent need for a new philosophy of wildlife resource use. Responsibility must be recognized and willingly accepted and programs developed that recognize the full potential of the wildlife resource.

Maintaining habitat, or hunting on private lands, cannot be isolated and solved as single problems. The same is true of pothole drainage, pollution and a score of others. There is a thread of similarity in almost every problem: the value of the resource is not realized. This indicates a basic weakness in the attitude towards wildlife resources. The problems will not be solved nor attitudes changed simply by improving existing techniques—by more of the same. What is needed is a philosophy that develops the positive value of the wildlife resource.

While recognition has been given to the aesthetic, social and economic values of wildlife, a positive program for full development of these values is lacking. The wildlife resource has tremendous, unrealized potential. Yet, wildlife management is characterized by protectionism and defensive policies. This must be reversed and defensive philosophies abandoned in favor of a positive philosophy.

If wildlife resources suddenly became something of tangible value to the farmer, to the community, to Main Street, in short to the public at large, would a defensive position be necessary? No. Instead there would be strong support for the resource. Is it not then reasonable to adopt a philosophy that visualizes full development and management of wildlife resources for the benefit of the public at large and not just the fisherman and hunters? Wouldn't it then also be reasonable to expect continued fishing and hunting?

Such a philosophy is needed now to transform the resource into local, state and national assets. It must embody certain principles. It must recognize wildlife as a resource of the land, governed by the same principles that govern other land resources, and subject to similar limitations and similar opportunities. It must recognize the potential of the wildlife resource in its broadest perspective. It must recognize the need for reducing conflict and for improved coordination. And finally, it must recognize the need for developing the full economic potential of the resource.

A Philosophy in Action

Translation of philosophy and concept into action requires imagination, boldness, and sheer determination. It cannot be accomplished by policy decree, but only through the tedious pursuit of a positive program. A seven point program is here proposed to activate a positive philosophy for discharging the responsibility of state agencies in managing wildlife resources.

1. Intensifying Management. Hunter pressure causes much conflict and ill will. Now, public hunting doesn't necessarily mean that all hunters must be out at the same time. Application of existing techniques for manipulating hunter pressure should be accelerated and emphasis increased on developing new techniques.

2. Improving Relationships. If private lands are to furnish public hunting, ways of working with landowners must be developed. This is fundamental, yet it remains a major stumbling block. It means more than public relations and good manners. It means developing mechanisms for maintaining effective working relationships at the local level—working cooperative organizations that actively involve the landowner, recognize his problems and respect his rights. The

objective is to bring the landowner into the solution of problems with which he is directly concerned.

3. Improving Coordination. It is also true if private lands are to provide public hunting, working relationships must be developed with other land management agencies. The goal is simple: to provide public hunting. All too often this objective is lost in a series of useless disputes and controversies between agencies. This frequent lack of compromise must give way to the cooperative task of incorporating wildlife management into the total land use planning.

4. Reaching a Broader Public. Direct efforts are required to reach and work with a broader public, with agriculture, industry, and with professional people. If a game department caters to "the sportsmen" it is serving a public that is neither homogeneous nor identifiable, but composed of a cross section of the people, most with other primary interests. Successful wildlife management requires support from organized groups—from farmers, businessmen, ranchers and others. Wildlife must become important to these people and specific programs developed for them.

5. Considering the Total Environment. Wildlife management cannot be practiced successfully until state agencies actively and directly concern themselves with the changing pattern of land use, human population statistics, agricultural economics, the impact of a modern and expanded transportation system, and so on. Wildlife managers have long recognized the biological environment. Unfortunately, little attention has been given to the political, legal, social, cultural and economic forces which create, to a large extent, the total environment and govern land use.

Only through careful study and understanding of these forces can they be considered in program planning and in developing long-range wildlife management plans. Most state agencies have no formal means of doing this.

6. Developing the Economic Potential of the Wildlife Resource. Wildlife economics, the development of the full economic potential of wildlife resource, is one of the most important, yet most neglected and least understood phases of wildlife management.

The wildlife resource has a tremendous, unrealized potential. Even without intentional development, expenditures for fishing and hunting have had an important impact on the local, state and national economies. If the potential is fully developed, wildlife resources would have a far more important economic role.

The climate for economic development has never been more favorable. Consider these facts: many farm operations are submarginal and uneconomic. Land retirement could reduce the agricultural surplus. There is an expanding labor force, most of which must be absorbed in providing services. There is both the market and the demand for outdoor recreation, the two necessary ingredients for economic potential. The economy is expanding, seeking new enterprises and markets. These situations all represent opportunities for economic development of wildlife resources.

There are at least three areas apparent where this economic potential can be developed.

(1) *The development of a system of compensation to individual landowners.* This has been discussed before (Berryman 1957, 1958) and the basic requirements of a compensation plan outlined. Suffice it to say that such a plan is practical and sound and the stigma attached to so-called "paid hunting" can be avoided.

Of this we may be sure: unless the states take the initiative in developing a system equitable to sportsmen and landowners, paid hunting will be arranged privately and not to the advantage of either the resource or the general public.

(2) *Community development.* Many businesses profit from fishing and hunting. There is, however, no organized effort to show communities how to realize returns from fishing and hunting. Many communities are completely unaware of the potential value of wildlife in stimulating local business. State agencies could do much for the rural and urban areas and for wildlife resource by providing planning and development services. Here is an opportunity to help communities plan and promote business that would in turn support wildlife management.

(3) *Improving conditions through economic exploration.* It is frequently possible to improve habitat by developing an economic use for a product or a new, profitable land use. For example, the economic production and marketing of charcoal briquets is of benefit in thinning timber stands in the north woods. The production of fish sticks removes so-called trash fish. Consider the advantages of developing a market for salt cedar, juniper, carp, or cattails. This would be a profitable means of control.

Where certain land uses are detrimental, the development of alternate land use practices would be worthwhile. The same is true of certain agricultural practices.

There are many opportunities to be found in the area of production and marketing. They can be explored through cooperative and contract research.

The economic development of the wildlife resource is not "commercialization"; it is not "paid hunting." It is a sound means of managing a resource. The challenge is to develop economic potential and avoid the dangers of crass commercialism.

7. Reorienting Education. An accelerated, expanded and reoriented program of public education is vital. We are not speaking here of the traditional "I & E" approach. The public must be educated to the ultimate role of wildlife resources in the total resource picture. A common fallacy is that there is but one public. There is a need to direct specific educational efforts at several specific publics. Industry, agriculture and labor must be made aware that wildlife is not a competitor, but a valuable resource. The license-buying public must be made aware that the wildlife resource is important for more than providing fishing and hunting.

A new image of wildlife resources must be created in the public mind. The public must visualize the importance and potential of the resource. This image must be shared by policy makers, politicians, Chambers of Commerce, and so on.

In short, having demonstrated the value of wildlife resources, the burden of defending these resources can be shared with a larger segment of the public. This is a job for education.

In conclusion, state agencies have a responsibility for providing public hunting on private lands and also for the larger and more important task of developing the full potential of the wildlife resource for the use, enjoyment and benefit of all segments of society. To discharge this responsibility will require the development and implementation of a new and positive philosophy.

To accept less is to allow public hunting to go by default and to miss the opportunity for developing a uniquely American system of wildlife resource management.

Enjoy Native Plants Through Wise Use

By A. B. MASSEY

Botanist Emeritus, Virginia Cooperative Wildlife Research Unit

"YOU cannot eat your cake and have it" is a familiar expression; however, such is not the case with our natural plant life. We can enjoy the use of our wild flowers and still have them, if we do so thoughtfully. This is what we mean by conservation. Use the plants wisely so that we can have them and they can perpetuate themselves. Some plants are not very productive and should be picked or transplanted very sparingly, if at all. Others may be used more freely.

The vegetative cover provided by native plants, or what we term "natural vegetation," is one of the earth's basic assets. Animal life could not exist in a world devoid of plants, and man himself is entirely dependent upon plants for his existence. The vegetation of the past ages developed the coal and oil which are so essential in our lives today. The soils of our farms owe their fertility to the vegetation of the past.

While agriculture has made great progress in developing cultivated plants which produce more luxuriantly than their native ancestors, native plants are still of great importance to us. Much of the plant materials of the manufacturing and agricultural industries still comes from native vegetation. The very common native plants are derogatorily called weeds. While weeds do trouble us in our fields and gardens at times, they are useful in many ways. Commonly, they are exacting in their soil requirements, and they quickly take possession of denuded areas or abandoned fields, thus helping to prevent gully formation and general erosion. Organic matter from their decay aids materially in developing the soil.

Broom-sedge has been considered by some people as a pasture and hay field pest. In reality, it is a blessing as many areas of mis-used land have been saved from extensive erosion by broom-sedge. When broom-sedge begins to appear in a pasture, it is "hand writing on the wall," signifying that fertilization and improved management are needed. Many of our drugs are derived from plant materials. Even the most showy of our ornamental plants have been developed from wild ancestors.

Since our native vegetation is of so much importance, it behooves us to conserve it through proper usage and protection. Plant conservation consists of the wise use of the vegetation and of the individual species which make it up. In developing a program for plant conservation we cannot compile a definite list of plants to be used, since no one list would fit all sections of Virginia. Even if the same plants are present in two sections, the conditions under which they grow may vary so widely as to require very different methods as to their use. The following set of rules outlines good plant conservation practice for all sections of the state:

1. Do not destroy the vegetation over an area by clearing, burning, or draining before considering the probable effect upon the soil, the surface of the area, the underground and surface water, and upon wildlife. Avoid needless destruction and too severe an upset of nature's balance between plant and animal life.

2. Do not cut shrubs or use native plants for mass decoration. Be moderate with the use of holly and other evergreens at Christmas time. Use lights and man-made materials for mass decoration, and be conservative with the evergreens. In the space of a few seconds man severs the life stream of a tree or shrub that nature has slowly developed over a period of years.

3. Do not pull the flowers of, or in any way disturb, the native plants which are not abundant in the region; in addition, be conservative and not wasteful of plants and flowers which are abundant in your country or region. A large colony in a place does not indicate abundance in the region. Gather for a particular purpose, and protect what you have gathered so that they will not wilt or be spoiled for your use. Dogwood is often abused by wrong handling of the flower-bearing branches after cutting to take home. The four white bracts (incorrectly called petals of the flower) around each cluster of small flowers wilt very quickly unless they are protected from drying air currents while carrying them home.

4. Do not pull all, or even most, of the leaves on a plant when gathering flowers. Remember that the leaves serve as the kitchen of the plant, and that they prepare a large portion of the food required by the roots and other parts of the plant. When one gathers the flowers of yellow lady's slipper, or wild lilies, most of the leaves are taken, thus weakening the roots and remaining parts.

5. Do not pull all the flowers of a plant. After the flower come the seed; therefore, always leave enough flowers for a good crop of seed. Seed are important for the perpetuation of the species. Also bear in mind that seed of native plants are often nature's provision for food for wild animal life through the winter season.

6. Do not transplant native plants thoughtlessly. Consider carefully the environment in which you find the plant thriving. Can you give it the same conditions on your home grounds? Plants which have grown in their native haunts often have spreading root systems, hence cannot be as readily transplanted as can nursery plants which usually have a more clustered root system.

7. Help others to acquire a true appreciation of native plants and set the example by following a program of conservation. Appreciation follows understanding. By encouraging plant study we can insure that school children and others will develop an interest in and a love for our native plants.

8. Preserve and protect interesting plant habitats and natural areas. Through the activity of clubs or other groups, hunt out unspoiled areas where one finds an unusual assortment of native plants. In places of the kind establish a *native plant garden,* if the area is small, or a *plant reservation* over a large area, thus preserving a typical vegetation as well as species of plants. Introduce other native plants of the surrounding region. Use such areas primarily for educational purposes in the clubs, schools and the public.

Dr. Massey's article is reprinted from the May 1952 issue of VIRGINIA WILDLIFE; the table of common Virginia flowers is reprinted from the April 1956 issue of VIRGINIA WILDLIFE.

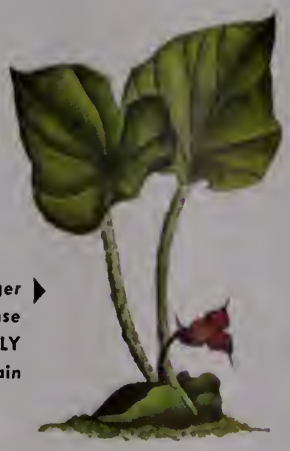
VIRG
WILD F

Watercolor Draw

Wild Rose
Rosa palustris
PICK FREELY
Statewide

Bluet
Houstonia caeruleo
PICK FREELY
Statewide

Running Cedar
Lycopodium flabelliforme
PICK SPARINGLY
Statewide



Wild Ginger
Asarum canadense
PICK SPARINGLY
Mountain

Cardinal Flower
Lobelia cardinalis
PICK SPARINGLY
Statewide

Virgin
Mertensi
PICK

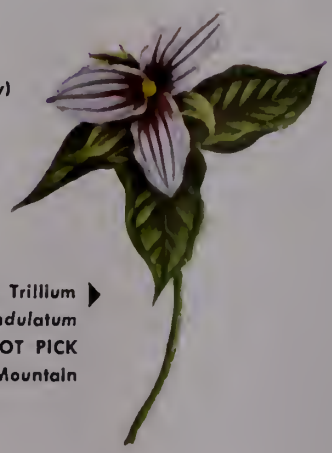
Butterfly Weed
Asclepias tuberoso
PICK SPARINGLY
Statewide

Hepatica
Hepatica americana
PICK SPARINGLY
Mountain

Trailing Arbutus
Epigoea repens
DO NOT PICK
Statewide

Zephyr
Piedmont

Dog-Tooth Violet (Trout Lily)
Erythronium americanum
DO NOT PICK
Mountain



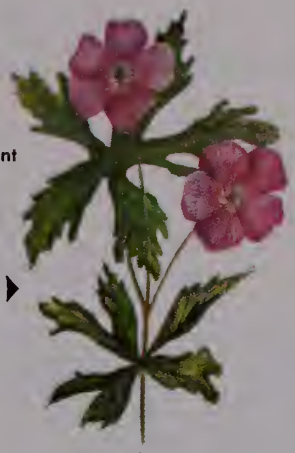
Painted Trillium
Trillium undulatum
DO NOT PICK
Mountain

Wood's Anemone
Anemone loncifolio
DO NOT PICK
Mountain

NIA
OWERS

J. W. Taylor

May Apple
Podophyllum peltatum
PICK FREELY
Mountain and Piedmont

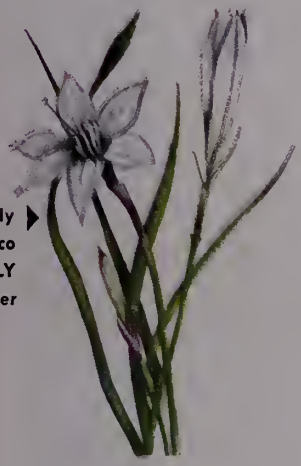


Wild Geranium
Geranium maculatum
PICK FREELY
Statewide

ell
ica
LY
ide

Jack-in-the-Pulpit
Arisaema triphyllum
PICK SPARINGLY
Statewide

Downy Foxglove
Gerardia virginica
PICK SPARINGLY
Mountain and Piedmont

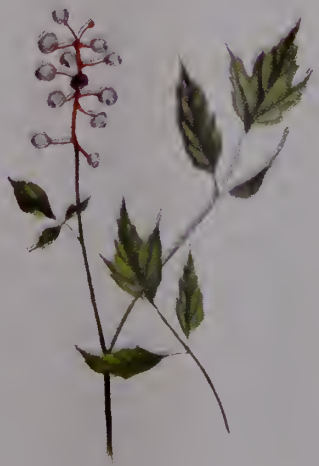


sco Lily
tamasco
RINGLY
dewater

Wild Iris (Blueflag)
Iris versicolor
PICK SPARINGLY
Statewide

Columbine
Aquilegia canadensis
PICK SPARINGLY
Mountain and Piedmont

v Orchis
s tabilis
T PICK
tewide



White Baneberry
Actaea alba
DO NOT PICK
Mountain

Pink Lady's Slipper
Cypripedium acaule
DO NOT PICK
Statewide

Some Common Virginia Flowers and the Degree They May Be Picked in the Three Major Geological Areas in Virginia

FLOWER	WESTERN			PIEDMONT			COASTAL PLAIN		
	Pick	Pick Sparingly	Leave to Multiply	Pick	Pick Sparingly	Leave to Multiply	Pick	Pick Sparingly	Leave to Multiply
Arbutus		X				X			X
Aster	X			X			X		
Atamasco Lily			X			X			X
Baneberry		X				X			
Bergamot		X				X			X
Birdsfoot Violet		X		X				X	
Bittersweet			X			X			X
Blackeyed Susan	X			X			X		
Bloodroot		X				X			X
Blueflag		X			X				X
Blue Violet	X			X			X		
Bluet		X			X			X	
Bouncing Bet	X			X			X		
Buttercup	X			X			X		
Butterfly Weed		X			X			X	
Cardinal Flower			X			X			X
Clover	X			X			X		
Columbine		X				X			X
Daisy	X			X			X		
Dandelion	X			X			X		
Dogtooth Violet		X				X			X
Dogwood	X				X			X	
Flame Azalea			X			X			X
Foxglove		X			X			X	
Gentian			X			X			X
Goldenrod	X			X			X		
Ground Pine		X				X			X
Hawkweed	X			X			X		
Hepatica			X			X			X
Holly			X			X		X	
Jack-in-Pulpit			X			X			X
Joe Pye Weed	X			X			X		
Mayapple		X			X			X	
Milkweed (common)	X				X			X	
Moccasin Flower (Lady's Slipper)			X			X			X
Orchids			X			X			X
Partridgeberry		X				X			X
Quoen Ann's Lace	X			X			X		
Running Cedar		X				X			X
Turks-cap-Lily		X				X			X
All other Lilies			X			X			X
Trillium (Nodding)			X			X			X
Trillium (Painted)			X			X			X
Trillium (White or Great)		X				X			X
Wild Cranesbill	X			X			X		
Wild Ginger		X				X			X
Wild Rose	X			X			X		
Wood Anemone			X			X			X
Wood Sorrel	X			X			X		
Yarrow	X			X			X		

Commission Photo by Kesteloo

A game refuge is an area that provides breeding ground and sanctuary in an effort to cause or support a larger game supply.

Principles of Game Management

Part Three:

Game Refuges

By JOHN MADSON and ED KOZICKY

Olin Mathieson Chemical Corporation

THE HISTORY of game management includes a long roster of cure-all remedies such as restocking, restrictive laws, predator control, habitat improvement and game refuges. At some time, each has been hailed as the final solution to game scarcity, but to date none has been effective in increasing game under all conditions.

One of the most ancient of these principles, the game refuge, can be highly effective when applied properly to certain situations. It is not, however, a cure-all for game scarcity.

A refuge may be an inviolate sanctuary intended to preserve a rare or vanishing wildlife form. For the purposes of this discussion, however, a game refuge is an area that provides breeding ground, sanctuary or other vital services to game in an effort to cause and support a larger game supply. The effective refuge corrects or alleviates the most serious defects in the adjacent range—defects that depressed the game supply in the first place. If, for example, game is limited by excessive hunting pressure, the refuge should be set up in an area naturally used by game as a refuge during the hunting season. Or, if the game range is deficient in food, water or cover, the refuge must be set up in an area where these necessities can be assured.

Game managers recognize three general types of refuges: (1) big game, (2) small game, and (3) waterfowl.

Goal of a big game refuge is to protect the basic breeding stock and increase the big game population. But in doing this, the refuge can defeat its own purpose. Deer and elk, for example, may build up a breeding momentum that is difficult to retard, and they can increase to the point where the available food supply is exhausted. The classic example is the Kaibab Plateau in northern Arizona, where total protection starved countless deer and damaged browse plants almost beyond recovery. As a result, regulations governing many big game refuges today are quite flexible and permit game managers to open special hunting seasons for the good of herd and habitat alike.

Refuges for small game can make important increases in the game supply if they contain adequate food and cover for year-around use. Such refuges should be small—seldom more than a few acres—so that close-ranging small game animals can easily move out of the refuge and become available to hunters. Unfortunately, most ideal small game habitat is in premium farmland, where initial costs and long-range expenses prohibit the development of extensive refuge systems.

A waterfowl refuge may be a breeding area, wintering area or flyway refuge. Breeding and watering areas are concerned with reproduction and survival until the next breeding season. The flyway refuges provide rest, food and safety during long migration flights. They are of immediate interest to the hunter, for such waterfowl way-stations strung between breeding areas and wintering grounds cause ducks and geese to linger in districts where they might otherwise be quickly "burned out" by hunting pressure.

Refuges are essential to the future of ducks, geese and the sport of waterfowling. But state and federal refuge programs —hamstrung by political borders, public apathy, lack of funds and the conflicting programs of other agencies—cannot keep pace with rising waterfowl needs. The director of the Bureau of Sport Fisheries and Wildlife recently stated that we have only half as many waterfowl refuges as are needed. Bad as this situation is, it will surely grow worse for it is improbable that public wetlands can be acquired as swiftly as private wetlands are being destroyed.

Although a game refuge is usually a legal unit with fenced or posted boundaries, some refuges are simply natural coverts inaccessible to man and policed by nature. They may be remote tablelands far from roads, dense swamps, tracts of virgin forest, or simply blank, open range where game is protected by sheer space. These unofficial refuges may even be heavy cover within city limits where shooting is prohibited, or safety zones around farm homesteads.

Where such natural refuges exist, the wise game manager may limit his refuge acquisition and development and channel his funds into other game management efforts.

The game refuge is not the only answer to greater game supplies, just as predator control and other management devices are not panaceas. The refuge is simply one tool which, applied in conjunction with other basic principles, can increase game. But blind reliance on refuges alone can waste money, time and effort, and dampen public enthusiasm for game management programs.

Corps of Engineers Photo

Water skiing was the cause of three boating accidents during the first six months of Virginia's Boating Safety Law. One person involved in these accidents was killed.

Policing The Waterways

By ROBERT MOSES

I AM by free choice a boatman, fisherman and swimmer. I hope you will not think me a marine wet blanket or ancient mariner, bent on hanging an albatross on your necks, if I make a few candid observations about the perplexing questions which increasingly bedevil boating and waterways.

Most pleasures have some penalties. The more people attempt to enjoy limited space, the more space shrinks. The more luxury and speed you put into mobile gadgets on water the less quiet and simplicity there is going to be for the family skiff, the contemplative rowboat fisherman, the lonely surf-caster and the solitary bather now increasingly menaced by planes above, 30-mile-an-hour outboards on the surface and aqualungs below.

Our dilemmas are these: How much unspoiled open water can we salvage for recreation and harmless pleasure, and how can we protect the simple fellow who is neither a racer nor an acrobat nor an exhibitionist? If we remain indifferent to the plight of the Izaak Waltons, only rain, hail, mist, sleet and gloom of night can save them from inevitable extinction.

How are we to prevent millions of boats from running wild on the waters, smashing into each other, capsizing from heavy wash? What about irresponsible water skiing? What of widespread pollution and other menaces? There is no alternative to immediate sensible Federal, state, and local regulation, and we must be prepared to pay the bill. We must be farsighted enough to anticipate a sea of troubles and take arms against them. The way things are going, the internal combustion engine will overwhelm us on the water as it has on land.

As far as incidental facilities are concerned, we at least know where we are going and how to get there. On the other hand, as to controls, we are still drifting with the tide. First we must settle the problem of speed. When are we going to curb the nitwit who climbs into his skiff, gives the motor a whirl, and with a series of ear-splitting explosions, roars off hellbent to see how much he can scare conservative law-abiding operators, and how close he can come to scraping the paint off their boats along the way? The only answers to this exhibitionist are summons, arrest, a stiff fine and in aggravated cases or after repeated offenses, suspension of boat and operator licenses. This driver must get the same treatment his road counterpart gets for the same outrages committed by automobiles or motorcycles.

Those who sail class boats and really love the vagaries of the wind haven't a chance against reckless outboard racers who are the gangsters of the waterways. Similarly, speeding motorboats cause waves which wash mud, sand and meadow mat into narrow waterways and channels, reduce their depth and clog them, but such damage means nothing to the ignorant or to those who can only be restrained by law. The marine hot-rodders endanger the quiet folk who rake, dig,

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dredge and otherwise gather shellfish and bait. They destroy nets and fishways and generally behave like road goons.

Decent motorboat captains and operators sit in helpless fury as passing fools and jokesters upset their lunches, chairs and passengers and tear across their trolling and chum lines. I have known ordinarily well-balanced and sane people to become so enraged they would throw bottles and even shoot at these speed demons. It is hard to blame a man for losing his temper as these incidents become more frequent and more outrageous.

What is there to be said for the madman who installs on his motorboat not only radio and television, but a ship-to-shore telephone, not for directions and safety, but to get the latest stock quotations and regale his friends aship and ashore with brilliant sallies such as "How are you kid," "Don't let anyone put anything over on you," "Don't take any wooden nickels," and "Well, here today and Guatemala."

We must have state, municipal, and other speed regulations carefully spelled out by legislation, similar to those applying to motor vehicles, and many more enforcement officers. We need more police boats. We must above all greatly expand and strengthen the Coast Guard in the regulatory and inspection powers, in their equipment and in their personnel. It will take considerable time to recruit, train and equip the men required.

We license people to carry pistols, but gaily give the 30-mile-an-hour speedboat to rank amateurs who have no knowledge of port or starboard buoys, running lights, tides, wave action, weather, wind markers, shoals, engines, rudder and steering storm signs and warnings and habits of swimmers and "snorkellers," not to speak of the forgotten courtesies of the water.

The seagoing cowboys don't carry or know how to use life-belts and about a fourth of them can't swim. Fully half of those who go fishing don't know one fish from another, when and where they run, what to use for bait or chum and whether to anchor, drift or keep the engine running. It's a pretty picture for the future if we don't enlarge our programs to educate these nimrods, tritons, Neptunes, outboard tars, water acrobats, motor mermaids and Davy Joneses.

We must also come to grips promptly with the problem of liability insurance for boatowners. Reckless boatmen must be penalized as are irresponsible motorists on the highways. The only possible answer is adequate compulsory insurance. Boats must from now on be equipped with compact but effective sanitary toilets. Millions of boats discharging litter and untreated sewage into the waters will ruin our priceless shore front, fishing areas and bathing beaches. Public opinion is rising against pollution of bays, harbors, and beaches from boat garbage and sewage which only the swiftest tides can carry away.

Boating is naturally a healthful, invigorating, relaxing and refreshing activity. Roads are confining. The sky is dangerous and not accessible to people of small means operating their own craft. Boats on pathless waters are the ideal means of recreation. Boating clears the brain and freshens the spirit. It is good for the soul. But we must make up our minds that if we want comfort and safety on the water, we must have adequate facilities and effective regulation and control. There is no longer room for hot-rodders or reckless Sunday sailors. Inspection, licensing, stiffer penalties for speeders, and better rules governing discharge of litter and untreated sewage are overdue, so that we may cope with the spawning of outboards and inboards.

The motorboat industry can protect itself and at the same time perform a notable public service by supporting these proposals. They are bound to go through anyway at the insistence of an aroused public.

WATER-BORNE "hot-rodders" are becoming an increasing nuisance to other water recreationists and a threat to the multiple-use principle that should apply equally to water resources as to land areas. Hon. Robert Moses, New York's controversial public figure, recently sounded off on the subject.

His "few candid observations about perplexing questions which increasingly bedevil boating and waterways," are excerpted from a recent public address. He is an expressive writer, as "Policing the Waterways" shows. His outspokenness has frequently made him the target of criticism but he is actually a quiet, calm and scholarly man, with a distinguished record at Yale (1909), Oxford University (1913), where he won honors in jurisprudence, and Columbia University where he earned a doctorate in philosophy in 1914.

Dr. Moses is a veteran of 40 years of dedicated public service and at the present time is chairman of the State Council of Parks and president of the Long Island State Park Commission, positions he has held continuously since 1924. He is president of the New York 1964-1965 World's Fair Corporation; chairman of the Triborough Bridge and Tunnel Authority since 1936; chairman of the Power Authority of the State of New York since 1954; and a leader of many other public and semi-public enterprises.

Commission Photo by Kesteloo

Boating safety courses are offered at only a few camps in Virginia. We must have more instruction to meet the increasing interest in boating.

Last Month of Magazine Subscription Drive

The 1960-61 VIRGINIA WILDLIFE subscription drive conducted by members of the Game Commission's field force will reach its climax this month. Local game wardens and fish and game division employees will appreciate any efforts made by subscribers to route their gift subscription orders through them.

While the regular subscription rates of $1.50 for 12 issues and $3.50 for 36 issues are in effect for single subscriptions, businessmen as well as sportsmen's clubs and other groups can take advantage of a 33 percent discount rate for 10 or more subscriptions ($1.00 a year for each subscription).

A County Wildlife Project

By BAILEY C. WILKINS
County Agent, Amherst County

A SMALL army of 4-H boys and girls in Amherst County equipped themselves with wildlife knowledge and launched an enthusiastic wildlife project in their county in 1960.

Practically all 613 club members took part in the county-wide project, which really began in May, 1959, when the club members were given opportunity to vote for the project of their choice to be taken on a county basis in 1960. Wildlife was favored by a majority of the members. The president and vice-president of each of the 21 clubs were requested to meet with the county extension personnel to select topics they felt would appeal to their fellow club members. This group requested that club members be given a definite part in conducting the program in the meetings and that members be given activities they could do at home.

The first 4-H meeting of the project year, held in September, was devoted to a brief explanation of the project and a wildlife identification contest. The contest was used as an interest-getter and proved successful. Each boy and girl was given a sheet of paper with numbers one through twenty. The club leaders asked the members to write the name of the bird, fish or animal shown in the picture. Pictures used were from issues of VIRGINIA WILDLIFE. Urban boys and girls generally did better on the identification than did rural boys and girls.

Each member was asked to bring an old bird nest to the October club meeting. A book on birds was given the club with the largest collection of different kinds of bird nests.

A few minutes of the October meeting were devoted to identifying the nests. Then the Game Commission film "Operations Wildlife" was shown to the members. Four volunteers from each club were assigned a common Virginia bird as a topic on which to report at the November meeting. Commission of Game and Inland Fisheries' educational leaflets on these topics were given to the boys and girls preparing the reports.

Commission Photo by Harrison

State Game Biologist Max Carpenter gives a helping hand to teen-agers interested in Virginia's outdoors.

A demonstration on making and setting of rabbit box traps was given in November. Club members were urged to make and set traps like these. No trapping record was kept, but the cottontail furnished considerable sport for youngsters of the county. The wild turkey and bird enemies were assigned as subjects for reports in December.

Demonstrations on constructing and using bird feeders highlighted the December meetings. Plans for constructing feeders were distributed to each member. Everyone was urged to erect a bird feeder during the Christmas holidays. Kinds of bird feed were also discussed. The wild birds of the county were probably grateful for this endeavor during the snows that came in February and March.

No wildlife program would be complete without a part being devoted to rodent control. Control of rats was studied in February, and the film "Stop Rats Forever" was shown.

The woodchuck was the subject of the March meetings, and a demonstration on the use of the gas cartridge was given at each club. Reports were heard on the gray squirrel and the raccoon.

With the coming of spring, thoughts turned to planting and fishing. Sixty-five three-pound packages of seed for wildlife plantings were distributed to the club members. This seed was made available by the Commission of Game and Inland Fisheries. Before giving the seed away a statement was obtained from each member, signed by parents, stating that land was available and the seed would be planted.

The Game Commission film, "Brooks and Rainbows," was shown in April. Those boys and girls who did not already have the fishing bug were inspired to try their luck on some of the nearby trout streams in the county. A copy of the fishing laws was given each boy and girl.

The year's planned program was concluded with a talk on first aid in the care of snake bite and a talk on sportsmanship.

A one-year subscription to VIRGINIA WILDLIFE was given the boy or girl in each club who completed the best wildlife project. This extra incentive inspired good work.

The assistance of Max Carpenter, district game biologist for the Game Commission, was secured on two occasions. He gave a wildlife talk and showed stuffed animals to the 4-H County Council and to the eighth grade 4-H Club. Hal Myers, Jr., also a Commission district game biologist, assisted in formulating the program and in obtaining the material.

The assistance of the county teachers, in whose rooms 4-H club meetings were conducted, greatly influenced the success of the project. They liked the project and gave their full support throughout the year, for which the extension personnel are grateful.

Vacation Time in the Mountains

By EDGAR T. LEMONS, *State Game Warden,* and F. L. WEBB
Collinsville, Virginia

EVERY YEAR when the warm spring days begin and spring fever becomes acute, thoughts turn to vacation. Some of the daydreams cannot become reality because of financial reasons. The beach, to those who don't live there, seems to be a favorite. You can have a reasonably priced vacation there if it is well-planned, but the ocean beaches have their drawbacks. In the summer they're hot and crowded, and sometimes it seems as though it would be better just to send your money and have a week or so of quiet rest at home.

Vacations are usually planned to be spent in an area that specializes in the tourist trade. The mountainous areas of Virginia have few places that specialize in the tourist trade; consequently there are few, if any, "tourist prices." The mountains have a great deal to offer someone who wants to rest, fish, swim, horseback ride, play golf, or just hike in some of the best scenery that can be found anywhere.

Fairystone State Park is one of the mountain parks that offer the vacationist all of the above luxuries except golf. That, too, can be had nearby. A spacious lake and sanded beach affords many pleasant hours of swimming for the entire family and big bass or nice-sized panfish for those who are addicted to the sport of fishing.

Within six miles of the park is a boat launching ramp on one of the finest reservoirs anywhere. The reservoir created by Philpott Dam at Union Church Bridge is a fine place to cast off for a day of fishing, water skiing, or a trip to one of the beaches for swimming or sunning. These lakes, the reservoir and Fairystone Lake, join one another, and although no world-record-breaking fish have come from these waters, seldom a week goes by during the season that someone doesn't get his picture in the local newspapers with a prize catch.

For the benefit of the fishing fans, there is another nice-sized lake, Beaver Dam Lake, within sight of the city of Martinsville. For the select group that are trout fishermen only, Smith River, from Philpott Dam to Fieldale, as well as Poor House Creek and Kibler Creek, are stocked annually and open to the public with the beginning of trout season. It is not uncommon to see lucky fishermen with their limit for the day varying from eight to 25 inches in length.

Corps of Engineers Photo

One of several boat launching sites at Philpott Reservoir in Henry County. The public is invited to use this launching area free of charge.

Horseback riding is offered at Fairystone Park, with many trails to ride. A nine-hole public golf course in Martinsville will provide a pleasant morning or afternoon. Seldom very crowded, it is located two miles north of Martinsville on State Route 890.

The Blue Ridge Parkway is a 20-mile drive from the park, the farthest you would have to drive during your stay there. This should be a must for everyone who does not get many opportunities to go there. You could spend years on this world-renowned stretch of road and never see it all. If, during your stay, you would like to watch wildlife, there is an abundance of deer and small game throughout the area and especially in the park. For those of the Luther Burbank cult there are many wild herbs and all types of plants and trees that grow in mountainous areas.

Stone or rock collectors can search for many an addition to their collections. Here and only here are found the famous "fairystones"—natural crosses formed of rock in a variety of shapes, but all shaped as a cross. A native of this section, Calvin "Uncle Cal" Clark (R. F. D. #2, Bassett, Va.), has a small concession stand near the entrance to the park. He is an authoritative source of information on the fairy stone. This wonder of nature will make you wonder, as none of the learned men so far can say why these twinned staurolite crystals were formed in the shape of a cross.

Accommodations in this area are not numerous. The park has cabins rented by the week, but you must have your name on the list (at the Division of State Parks, State Office Building, Richmond) well in advance as they are usually booked up throughout the season. Campers can find many places to pitch tents, in and out of the park area. Unfortunately, if you do not camp out and cannot get a cabin at the park, there are not too many accommodations to be had. Martinsville has a few tourist homes and quite a number of tourist courts. More cabins may be available soon near the park area.

There are supermarkets in Bassett, Collinsville, and Martinsville and several country stores within a few miles of the park. Hardware, sport stores and other businesses to accommodate you are not far. Boats can be rented at the park and at Goose Point Marina and Twin Ridge on Philpott Reservoir. Bait can be obtained in many places.

If all the sports sound too strenuous, just bring along a hammock, find a quiet spot in the shade near the lake or a small mountain stream, and you will know why the State of Virginia has chosen to preserve over 5,000 acres where the Fairystone legend says Titania's fairy and elfin subjects lived long before Chief Powhatan and the gentle Pocahontas knew of these beautiful Blue Ridge Mountains.

THE MULTIPLE-USE CONCEPT (Continued from page 5)

in these areas is sufficiently modified so the scenic aspects of the areas are not impaired.

Forest recreation, illustrated by Sherando Lake Recreation Area, Elizabeth Furnace and Hone Quarry on the George Washington and Cave Mountain and High Top on the Jefferson, is another type of resource use that is demanded by the people.

Wildlife

The Virginia national forests in a number of areas are facing the problem of attaining a balance between big game animal populations and their environment and coordinating their use so that the use is not detrimental to natural reproduction of the forest. These problems must be solved by joint action of the Forest Service and the Virginia Commission of Game and Inland Fisheries, because the state owns the game and has the responsibility for setting bag limits and hunting seasons.

Under the cooperative wildlife program that has been in effect for a number of years in Virginia, wildlife habitat improvements have been constructed for betterment of game environmental conditions. Opportunities are taken to coordinate road construction jobs and other activities, so that wildlife will benefit from such action.

Special use permits for power and oil and gas transmission lines stipulate that certain sections will be sown to grass and shrubbery that are beneficial to wildlife.

Through efforts of your Game Commission and the Forest Service, along with coordination with other resource activities, the two national forests, over a relatively short period of years, have figuratively been converted from a partial "biological wilderness" to a hunters' paradise.

Soil and Water

As mentioned previously, conduct of activities in other resources is so managed that it contributes to betterment of soil and water conditions. All measures are taken to see that no permanent damage occurs.

Areas that constitute an erosion problem, such as old iron ore dumps, manganese strippings and land slides are being revegetated. Grass and tree species used in the revegetation contribute food and cover for wildlife. In a number of areas where erosion problems have been corrected, small water holes have been included for use by wildlife.

Channel and streambank stabilization are being done on a small scale. Much of this work contributes to the improvement of fishing.

In a number of areas of both forests, small impoundments are being constructed on national forest land by the Soil Conservation Service for flood control purposes. Purpose of these structures is to reduce damages to farms on the lower reaches of the drainage. Several communities have joined in with the S. C. S. and added sufficient funds to have a multiple-purpose structure built—combination flood control and water supply. These impoundments, with a conservation pool area of 8 to 11 acres, will be used by the Forest Service for recreational purposes.

Minerals Management

On many of the tracts acquired by the United States for national forest purposes, mineral rights were either reserved by the proponent or rights were outstanding in third parties. Where rights are outstanding, the mineral owner has the right to operate such minerals under the conditions expressed in the instrument severing the minerals from the surface. The Forest Service has the responsibility of supervising the exercise of these rights in order that no action is taken by the operator that is contradictory to the terms of the mineral deed or lease. The Forest Service must work with the operator to protect the wildlife, soil and water value.

Where mineral rights have been reserved, the Government accepted such reservations subject to specific rules of operation. Here the Forest Service can administer the operation and at the same time protect wildlife, soil, water and even the recreation resource in many instances. Mineral rights owned by the Government and under permit are likewise operated under detailed rules which protect other resources.

These are a few examples of the relationships and interrelationships of the various resource uses and measures being taken by the Forest Service to coordinate them so that they react upon and benefit each other and conflicts are minimized. Under this system of management it is seldom possible to obtain maximum production of any one resource because of the concessions that have to be made to accommodate the others. However, we feel that this kind of management will yield the greatest total benefits to the public from the uses of the resources. In planning and setting priorities, the intangible values which are difficult to assess and express in monetary terms are given equal consideration with those that produce financial returns.

To Mow, Or Not To Mow

"Game management can involve *not* doing things, as well as investing time and effort in constructive ways. Some activities on the land follow time-worn habits that serve no good purpose. In addition, they can be extremely detrimental to wildlife," says Joe Linduska, director of public relations and wildlife management, Remington Arms Company.

"Mowing idle land, for example, is a grossly overworked activity that accomplishes nothing in most situations. And the cutter-bar toll of wildlife which results is both substantial and unnecessary.

"How critical for wildlife is mowing? It's a fair bet that farm game victims of the cutter-bar each year exceed in number the legal take by hunters. A spot check of one 15-acre field mowed in June revealed the loss of two whitetailed deer fawns, no less than seven cottontails, a woodchuck and one quail nest.

"A heap of energy has been put forth in trying to devise means for avoiding this destruction of game. Flushing bars in profusion have been developed and invariably abandoned after fair trial. Other gadgets have proven both ineffective and a nuisance to maintain. At the moment there appears to be no good means for shooing hayfield inhabitants from the path of the cutter bar.

"But the regular mowing of fencerows, roadsides, ditch banks and other idle areas—well, that's something else again. The harm done is plain enough—a direct toll of wildlife, spring and summer, and a loss of excellent food and cover, fall and winter. As for the good accomplished, that's much less evident. The common justification is 'weed control.' But the weeds involved invariably are species, the spread of which is unaffected by mowing.

"When it comes to mowing, a landowner interested in wildlife or in improving the economy of his operation (and who isn't) may do well to ask himself: 'Is this trip necessary?' "

Bird of the Month:

The Willet

By DR. J. J. MURRAY

Lexington, Virginia

TAKE a boat out from the old hotel at Wachapreague in June. Cross through the wide stretches of marsh to Cedar Island. After a good look across the surf at the Atlantic, walk along the back side of the island. You will not have gone far before a pair of birds will rise and with fluttering wings fly about over your head, crying out, "pill-will-willet, pill-will-willet." The willets have introduced themselves, not welcoming you but warning you that for them this is "no man's land." As long as you intrude upon their nesting grounds they will continue to cry out their names in insistent and monotonous repetition.

Fourteen to 16 inches in length and with a wing spread of 25 or more inches, the willet is a larger-than-average shorebird. When standing with folded wings it is an unobtrusive pale gray, but in flight the striking black and white wing pattern tells a very different story. A black triangle at the bend of the wing and a black band at the back of the wing are separated by a wide white band. This pattern is even more startling when the bird on alighting holds the wings high for a second before coming to rest. Because of this flashy outline as it flies about a visitor, the willet is one of the most noticeable birds of the marsh or beach. It seems always a nervous, restless bird.

This fine shorebird breeds along the Atlantic coast from southern New Jersey to Florida and along the Gulf coast to Texas. In the last century it was abundant, but because of its striking appearance and its fearlessness the bird has been so persecuted that it is no longer seen in many of its former haunts. Happily, the willet is now on the upgrade.

The Eastern Shore is the willet's main haunt in Virginia. The vast tidal salt marshes between the mainland and the fringe of barrier islands are filled with them during the nesting season. To some extent they concentrate in certain breeding areas, sometimes placing nests within 25 feet of each other. In June, 1959, John Terborgh estimated 159 pairs around Cedar Island, finding the nests of 35 of these pairs. In the fall migration a western variety of the willet crosses over and moves down the Atlantic coast, becoming possibly more common then than our eastern race. It is unusual to find the bird on the western side of Chesapeake Bay. It has been known to wander far inland.

The nest is a hollow in the sand or dirt, often on the back side of the beach, sometimes on a high bit of ground in the marsh. The nest hollow is lined with soft grasses. Four eggs are laid, having a variable ground color of bluish-gray, olive or brown, marked with darker shades. Late May is the usual nesting time in this latitude. As is the case with all shorebirds, the young begin to move about as soon as they are hatched. Young willets, however, are not as active as the young of many of their relatives.

Audubon Junior Clubs

Some 50 years ago, a pioneer project in nature education was begun, in order to help children learn about the world of nature. The Audubon Junior Club program was started by the National Audubon Society. Its method: to provide parents and teachers with guidance in giving their children first-hand experience in exploring nature. In this way, children could not only be given expert assistance in interpreting what they saw but also they could be shown how to observe more widely and accurately.

It was the conviction of the Audubon Society that if America's precious natural resources were to be conserved and wisely managed, the nation's children would have to develop early in life an appreciation of their importance.

To date, the lives of some 11,000,000 children have been enriched through Audubon Junior Clubs. Some of America's top-flight naturalists and conservationists were inspired to their life work by Junior Club activities in their formative years.

How does the Audubon Junior Club program work? To begin with, most of the clubs are formed in school classrooms. Club projects are carefully planned to fit in smoothly with the classroom work of the elementary grades. Teachers are enthusiastic about the added value of the material in elementary science, social studies, creative arts, and even arithmetic. Many clubs have been formed in groups like the Cub Scouts or Brownies. Parents have occasionally organized a club themselves but more frequently they help organize them within an existing group of children. Ten or more children, plus a leader, are required to form a club. Each child pays a nominal fee of 25¢ which gives him a real sense of belonging to the group and which also helps defray part of the cost of the material.

The leader receives free from the National Audubon Society, New York 28, N. Y., a guide that describes a number of basic projects for the club's use, such as making a terrarium or an aquarium. It also contains an invaluable list of reference books and guides on conducting the club program.

The key to the year's activities, however, is found in a set of Project Sheets, sent to the club leader at regular intervals. During the coming year, five project sheets will be issued on Trees, Birds, Insects, Flowers and Mammals. These sheets give basic information on each subject and list many fascinating activities for the club to enjoy.

Each child receives a Junior Club Scrapbook, divided into sections that correspond to the subjects covered by the leader's Project Sheet. The scrapbooks are profusely illustrated with colored pictures of birds, animals and plants, as well as with line drawings, and each section contains descriptive material and projects. The scrapbook is a sort of framework. Each child fills it with his own highly individualistic pages containing clippings, stories and a record of nature observed through a child's eyes.

Virginia's creeks and marshes awaken in spring and are filled with reptiles and amphibians of many kinds. Here youngsters search for specimens to be used in science classrooms.

Photo by Dur Morton from National Audubon Society

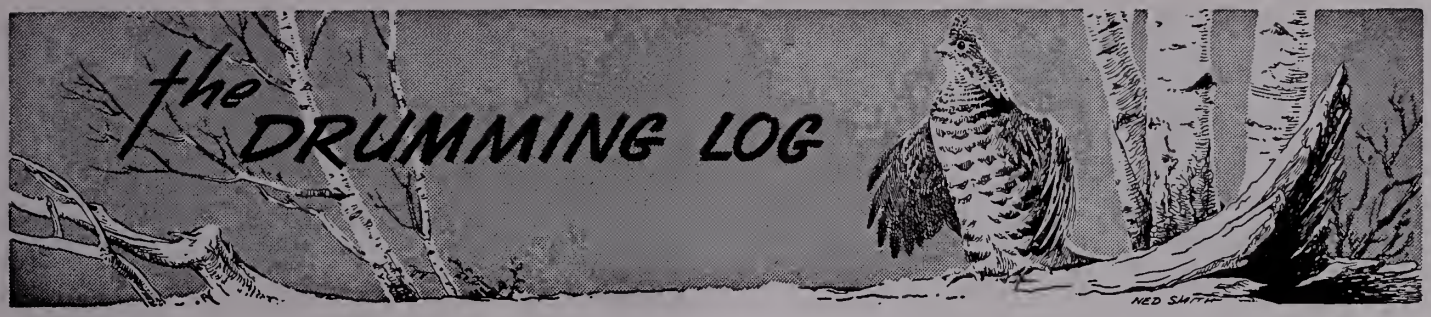
Fish Rodeo Time

Izaak Walton Leagues and other sportsman's clubs are active this time of the year with fishing rodeos for young people as well as adults.

The Carroll County Izaak Walton League sponsored a fishing rodeo on April 8 on Snake Creek. They gave away a rod and reel each to the girl and boy who caught the biggest fish and a $25.00 savings bond each to the girl and boy catching the largest number of fish.

The Blue Ridge Game and Fish Association of Roanoke held their rodeo on April 29 at Fishburn Park, a new location. They divided the young anglers into four age groups and assigned each group to a dam at the city-owned park.

The Henry County Journal Trout Rodeo was held on April 1 on the Smith River. The children's division winner was 11-year-old Judy Faye Compton of Fieldale. She won top honors with a 15¼ inch trout.



Big Game Awards Given at Bedford

Macon C. Putney of Big Island, a law student at Washington and Lee University, won top honors for his 12-point buck in the first annual big game trophy competition of the Bedford County Game and Fish Association.

Putney killed his big buck in Amherst County in 1959. Second place in the deer competition went to John Byrne, Jr. of Lowry.

Dr. Tom Jennings of Bedford is club president. Judging the deer contest were Mayor Mitchell Bower and J. E. Thornton, supervising game biologist of the Virginia Commission of Game and Inland Fisheries.

Three Deer Spotlighters Sent to Prison For Killing Deer Out of Season

Stiff prison sentences and heavy fines have been imposed by Wythe County Court Judge W. C. Thomas on three men convicted of spotlighting and killing a deer out of season. In addition, county authorities have moved to confiscate an automobile used by the men in the deer hunt earlier this month, two shotguns, a rifle and a pistol.

The largest fine—$750—and the longest jail sentence—90 days—was imposed by Judge Thomas Wednesday on Ernest Franklin Gordon of Rural Retreat. The fine included $250 for "spotlight" deer hunting, $250 for killing a deer out of season, $100 for hunting with an unplugged shotgun, and $150 for replacement of the deer that was slain.

Each of the other two convicted hunters, William L. Long of Rural Retreat and Hoover Pickle of Groseclose, was fined $250 for killing a deer out of season and $10 for hunting without a license, and each was sentenced to 60 days in prison.

Judge Thomas acquitted two 18-year-old youths who were arrested with Gordon, Long and Pickle on March 8 in the Black Lick section of Wythe County. Wythe and Smyth County state game wardens and managers made the arrests.

Conservation Conversation

Before they have reached any final solution
To problems of water control and pollution,
As voices go higher and faces grow tauter,
There's going to be lots of damns over the water.

GLADYS B. CUTLER

These three black bears were killed in two hours on December 10 by three members of the Bear Creek Hunt Club near Groseclose. Charles Scott stands next to his 346-pound female and Pete Campbell next to his 200-pound female. The 80-pound female bear in the center was killed by Preston Hall.

Foxhound Field Trial

The Annual Southeastern Night Foxhound Field Trial was held on April 6, 7, and 8 in Clarksville with 39 hounds entered. Because of poor weather and the tough course, only eight hounds finished, from which 5 placed.

First place honors went to "Duke" owned by Garnet Jones, Chase City, second place to "Doc" owned by Gerald Simmons of Clarksville, third place to "Coonhound" owned by S. W. Johnson of Baskerville, fourth place to "Blackboy" owned by B. H. Johnson of Baskerville, and fifth place to "Hi Tail" owned by J. W. Strickler of Blacksburg.

Bennett Fund Planned

A drive will begin this spring to raise money to underwrite a Hugh Bennett Professorship in Soil at North Carolina State College as an honor to the Anson County farm boy who became one of the world's great agricultural leaders, according to the Wildlife Management Institute. Dr. Bennett, who died last year at 79, was named the first chief of the U. S. Soil Conservation Service in 1935 and headed that agency for 16 years.

Many of Hugh Bennett's friends have expressed a desire to contribute to the professorship fund. Inquiries should be sent to the Director, Extension Service and Experiment Station, School of Agriculture, North Carolina State College, in Raleigh.

Game and Fish Association To Be Reorganized

A group of outdoorsmen is making plans to reorganize the Rockingham Game and Fish Association which has been more or less dormant for the past two years. Suggestions made to restore the organization to its standing of some years ago have included:

(1) Setting the annual membership at $1.00 per year. An effort will be made to have memberships from both husbands and wives.

(2) Opening the membership to anyone interested in hunting and fishing, regardless of race.

(3) Making the office of Dr. O. F. Foley, West Water Street, headquarters for the membership drive.

(4) Planning to hold a reorganizational meeting, probably at Mt. Clinton EUB Church, and to secure an outstanding outdoors speaker.

(5) Each Ruritan Club in the county will be contacted by an interested member in an effort to give any Ruritan who may be interested in the association an opportunity to join with others in keeping abreast of what is being done by the Commission of Game and Inland Fisheries and others to promote better hunting and fishing for the central Valley.

Maryland Deer Die-Off Attributed To Insufficient Hunting

Mother Nature, Goddess of the spring, also the Grim Reaper of the winter past and certain Maryland deer herds are living testimony of this fact.

As winter snows melted in that State it became evident that an unusual number of deer were dead and dying in areas of high deer populations. This prompted the Maryland Department of Research and Education to investigate the cause, using their own biologists and an outside team of experts.

Dr. Frank A. Hayes, Director of the Southeastern Cooperative Wildlife Disease Study and field biologist Charles M. Marshall were called in from the University of Georgia to assist Dr. Vagn F. Flyger of the Maryland Department of Research and Education. Together they collected 39 white-tailed deer and performed complete autopsies on each in Annapolis.

The results of the field and laboratory examinations, plus further studies at the Georgia laboratories, showed that when deer populations are allowed to exceed the natural capacity of the land, trouble begins for the deer. Though starvation was suspected, the real cause was not that simple. The deer were found to have a large number of biting-lice, brain worms and stomach worms. The food supply was low due to the large number of deer present and the unusually severe winter cold proved to be the last straw.

When insufficient harvests by hunting occur, parasite problems and food shortages rise each year as the numbers in a deer herd increase. Winter broke the expanding bubble and deer started to die. The deaths were concentrated among young deer which could not compete for the remaining food, deer crippled by automobiles, and those weak by nature.

At the conclusion of the study, Dr. Hayes stated that this condition could be expected to be found in areas of high deer numbers as far north as the New England States, south in the mountains to Georgia, and east to Arkansas.

The biologists conducting the investigation point out that the die-off is nature's way of weeding out undesirable or weak members of an overabundant animal population, and that artificial feeding is not recommended since it will only prolong an already poor situation and lead to a greater die-off at a later date. They further point out that in the case of deer, if too few are removed by hunting only bucks or by not shooting enough deer, this type of natural mortality in the winter will be quite high.

"I used to have a man on that counter—and then it occurred to me that I was using the wrong bait!"

Program to Improve Hunting, Fishing in Forests

Sportsmen can look forward to better hunting and fishing in the national forests during the next 10 to 15 years because of a wildlife habitat management program announced by the U. S. Department of Agriculture. This plan, called *National Forest Wildlife,* is part 2 of Operation Outdoors.

Operation Outdoors is a more detailed presentation of the wildlife phase of the program for the national forests already approved by Congress and commonly known as Operation Multiple Use. It is designed to improve fish and game conditions and meet the growing public needs. Planning of improvements for each area will be carried out in cooperation with the State fish and game departments.

Highlights of the program include: Planting shrubs, grasses and herbaceous plants on 1.5 million acres of game range; clearing openings, food patches, and game ways for wildlife in dense vegetation on 400,000 acres; and improvement of 7,000 miles of fishing streams and 56,000 acres of lakes by stabilizing banks, planting streamside cover, and constructing channel improvements. The cost of improvements is estimated at $25.6 million over a 10 to 15 year period.

Duck Food Plants Thwart Muskrats

Maintenance of adequate concealment for waterfowl is a widespread problem in many areas inhabited by muskrats. The feeding activities for these furbearers make the establishment of vegetation particularly difficult in newly created impoundments that are being developed for breeding waterfowl. Studies at the U. S. Fish and Wildlife Service's Patuxent Research Center have indicated that in shallow waters the squarestem spike rush *(Eleocharis quadrangulata),* common rush *(Juncus effusus),* spatterdock *(Nuphar luteum),* and buttonbush *(Cephalanthus occidentalis)* supply a variety of valuable cover types that are highly resistant to muskrat damage. The density of these cover plants is controlled by regulating water levels. Impoundments in which muskrats had completely eliminated such useful plants as the bulrushes *(Scirpus spp.),* wildrice *(Zizania aquatica)* and arrowheads, or duck-potatoes *(Sagittaria spp.),* now have good stands of the aforementioned food and cover plants following water level manipulations.

Joins Fisheries Lab Staff

Dr. William J. Hargis, Jr., Director of the Virginia Fisheries Laboratory, Gloucester Point, announced April 6 the appointment of Fred C. Biggs of Roanoke Rapids, North Carolina, to the education department of the Virginia Fisheries Laboratory. Assigned to the preparation of special publications of the laboratory and associated with Robert S. Bailey Biggs was born in Durham, North Carolina, and attended Wake Forest College.

Overloading Boat Causes Accidents

Watch the waterline on your boat as carefully as you watch your own waistline. Waves can easily swamp a small boat that's overloaded or that has an unbalanced load.

Remember that the number of seats in a boat does not always indicate capacity. The seats are intended to permit a variety of seating arrangements; they are not intended to be occupied all at once.

Before loading up, check the gunwales (sides) and body construction of your boat. The height of the gunwales and the boat's body construction (wood or metal) have an important bearing on the total carrying capacity.

In loading your boat, keep the center of gravity as low as possible by stowing all gear amidships flat, not piled up.

Allstate Insurance Safety Crusade

Overloaded?!

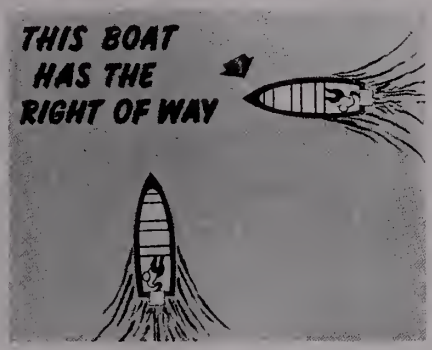
Remember, balance should be maintained from side to side and from bow to stern.

Motorboat skippers should be certain that the transom is solid and of sufficient height before fastening the motor. Swamping can result from the combined weight of you and the motor concentrated astern if the transom is too low.

Skiers Should Wear Belt

Whether you are a novice or professional water skier, you should wear a safety belt at all times when riding water skis. Although state law requires a safety belt to be worn only when an observer or rear view mirror are absent from the boat, the safety belt is highly recommended.

No skier is immune to panic and therefore chances should not be taken. Modern ski belts are so light in weight and form-fitting in design that a skier seldom finds them a hindrance. They are even worn in professional competition.



Boats to the right have the right of way.

Rules of The Road (Part 1)

Basically, there are three main situations which can lead to collision afloat—and an inevitable lawsuit ashore. These situations are the meeting situation, the crossing situation, and the overtaking situation.

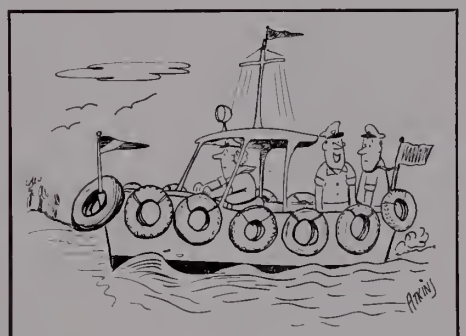
Meeting

When two people meet on a sidewalk, each will alter direction to the right enough to avoid collision. When two boats approach each other, they too must alter course to the right to pass clear. One vessel will sound one short blast (one second's duration) on her whistle to show her intention of keeping the other vessel on her port side during passing. The other vessel answers with one short blast to show that she understands and agrees. If the vessels are far enough to starboard of each other that no change of direction is needed for a safe passage, both vessels will maintain their course and speed and pass clear. In this case, either vessel will blow two short blasts to show her intention and the other will answer with two short blasts to show that she understands and agrees. In both these meeting situations, if either of the two vessels does not understand the other's signals or feels that the type of passage signalled for would be dangerous, she should sound the "Danger Signal," which consists of four or more short, rapid blasts on her whistle. The cause of head-on collisions usually is carelessness, stubbornness or ignorance of the rules, none of which is any excuse at all.

Crossing

From two points abaft the beam on one side of the boat to two points abaft the beam on the other side extends an arc of twenty points of the compass. An approaching vessel anywhere on this arc except dead ahead may create a crossing situation for you. If her position on the arc is to the right of you, she has the right of way and you must keep clear. If she is to your left, you have the right of way and you must hold your course and speed while she keeps clear. If you are not certain—if you start twisting and turning—you will lose your advantage of having the right of way.

In this situation, the vessel with the right of way is called the "privileged vessel" and must hold her course and speed. The other vessel is called the "burdened vessel" and must maneuver to keep clear of the other. As the two vessels approach each other, the privileged vessel will sound one short blast on her whistle to signify that she has the right of way and is maintaining her course and speed. The burdened vessel will answer with one blast to indicate that she has heard and understood the signal and will keep clear. If there is any doubt in your mind as to the intentions of the other vessel, you should not hesitate to sound the danger signal.



"Sometimes I let her take it into the dock."

Boating Accident Trend Continues

The Virginia Game Commission had not received a boat accident report in 1961 that didn't have at least one drowning recorded as of mid-May.

Seven boating accident reports had been received since January 1 with a total of eight drownings, five of which were due to persons falling overboard.

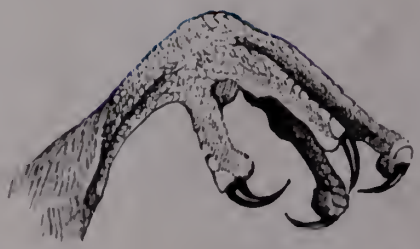
Admired by men since medieval times, falcons are valuable and unique members of Virginia's avifauna. Two kinds may be found nesting in the state while a third, the pigeon hawk or merlin, may be found during migration.

The falcon's bill is without the notch present on other hawks and eagles.

FALCONS

The noble peregrine falcon, or duck hawk, needs the sympathy of all outdoorsmen. It is now scarce in Virginia

Best known falcon is the sparrow hawk or kestrel common throughout the state



The falcon's "fist" is used to strike its prey while in flight

JW TAYLOR